25300 585/CLAS
L11 56 L10 AND 585/CLAS

=> d 1-56

1. 5,744,670, Apr. 28, 1998, Process for preparing dialkylnaphthalene; Masahiro Motoyuki, et al., **585/320**, **312**, **313**, **314**, **315**, **323**, **448**, **450**, **467**, **471**, **475**, **478**, **479**, **481** [IMAGE AVAILABLE]

2. 5,689,024, Nov. 18, 1997, Use of crystalline SUZ-9; Kirk D. Schmitt, **585/467**; 208/113, 120, 134, 136, 137, 138; 210/690, 691; 568/791; **585/722**, **739**, **820** [IMAGE AVAILABLE]

3. 5,625,113, Apr. 29, 1997, Isoparaffin/olefin **alkylation**; Mohsen N. Harandi, et al., **585/722**, **714**, **716**, **730**, **731** [IMAGE AVAILABLE]

4. 5,569,805, Oct. 29, 1996, Catalytic conversion of aromatic compounds; Jeffrey S. Beck, et al., **585/446**, **467**, **470**, **475**, **477**, **481** [IMAGE AVAILABLE]

5. 5,554,274, Sep. 10, 1996, Manufacture of improved catalyst; Thomas F. Degnan, et al., 208/111, 135, 264; **585/467**, **475**, **481** [IMAGE AVAILABLE]

6. 5,545,788, Aug. 13, 1996, Process for the **alkylation** of benzene-rich reformate using MCM-49; Jane C. Cheng, et al., **585/467**, **446**, **453** [IMAGE AVAILABLE]

7. 5,534,656, Jul. 9, 1996, Organic compound conversion with MCM-58; Ernest W. Valyocsik, **585/709**, **475**, **476**, **721**, **722**, **739** [IMAGE AVAILABLE]

8. 5,516,962, May 14, 1996, Catalyst and process for isoparaffin-olefin **alkylation**; Cynthia T.-W. Chu, et al., **585/722**, **709** [IMAGE AVAILABLE]

9. 5,493,065, Feb. 20, 1996, Liquid phase ethylbenzene synthesis with MCM-49; Jane C. Cheng, et al., **585/467**, **446** [IMAGE AVAILABLE]

10. 5,488,194, Jan. 30, 1996, Selective production of para-dialkyl substituted benzenes and catalyst therefor; Jeffrey S. Beck, et al., **585/475**, **446**, **452**, **467** [IMAGE AVAILABLE]

11. 5,475,178, Dec. 12, 1995, Supported heteropoly acid catalysts; Kenneth J. Del Rossi, et al., **585/455**, **407**, **467**, **475**, **481**, **486**, **640**, **653**, **654**, **671**, **721**, **722**, **724**, **725**, **732**, **752** [IMAGE AVAILABLE]

12. 5,461,182, Oct. 24, 1995, Hydrogen transfer and isoparaffin-olefin **alkylation** process; Stuart D. Hellring, et al., **585/722**, **709**, **721** [IMAGE AVAILABLE]

13. 5,401,896, Mar. 28, 1995, Process for preparing long chain alkyl aromatic compounds; Guenter H. Kuehl, et al., **585/455**; 568/715; 570/182, 183, 190, 201; **585/467** [IMAGE AVAILABLE]

14. 5,396,016, Mar. 7, 1995, MCM-36 as a catalyst for upgrading paraffins; Gregory A. Jablonski, et al., **585/708**, **739** [IMAGE AVAILABLE]

15. 5,382,742, Jan. 17, 1995, Gallium-containing zeolite **MCM-22**; Roger A. Morrison, et al., **585/654**; 208/134, 137; **585/648**, **653**, **658** [IMAGE AVAILABLE]

16. 5,371,310, Dec. 6, 1994, Process for preparing short chain alkyl aromatic compounds; J. Michael Bennett, et al., **585/467**, **446**, **453** [IMAGE AVAILABLE]

17. 5,364,999, Nov. 15, 1994, Organic conversion with a catalyst comprising a crystalline pillared oxide material; Charles T. Kresge, et al., **585/407**, **446**, **467**, **475**, **481**, **486**, **654**, **722**, **752** [IMAGE AVAILABLE]

18. 5,334,795, Aug. 2, 1994, Production of ethylbenzene; Pochen Chu, et al., **585/467**, **446**, **453** [IMAGE AVAILABLE]

19. 5,329,059, Jul. 12, 1994, Alkylaromatic disproportionation; David O. Marler, **585/475**, **471** [IMAGE AVAILABLE]

20. 5,326,922, Jul. 5, 1994, Hydrogen transfer process; Albin Huss, Jr., et al., **585/722**, **709**, **721** [IMAGE AVAILABLE]

21. 5,324,881, Jun. 28, 1994, Supported heteropoly acid catalysts for isoparaffin-olefin **alkylation** reactions; Charles T. Kresge, et al., **585/721**, **722**, **725**, **732** [IMAGE AVAILABLE]

22. 5,304,698, Apr. 19, 1994, Solid catalyzed supercritical isoparaffin-olefin **alkylation** process; Altaf Husain, **585/722** [IMAGE AVAILABLE]

23. 5,258,569, Nov. 2, 1993, Isoparaffin-olefin **alkylation** process with zeolite MCM-36; Cynthia T. Chu, et al., **585/722**, **726** [IMAGE AVAILABLE]

24. 5,258,566, Nov. 2, 1993, Process for preparing long chain alkylaromatic compounds; Charles T. Kresge, et al., **585/467** [IMAGE AVAILABLE]

25. 5,258,565, Nov. 2, 1993, Process for preparing short chain alkylaromatic compounds; Charles T. Kresge, et al., **585/467** [IMAGE AVAILABLE]

26. 5,254,792, Oct. 19, 1993, Isoparaffin:olefin **alkylation** in the presence of synthetic porous MCM-49; Altaf Husain, et al., **585/722**, **726** [IMAGE AVAILABLE]

27. 5,250,277, Oct. 5, 1993, Crystalline oxide material; Charles T. Kresge, et al., 423/329.1; 208/46, 108, 111, 113, 120, 134, 135; 502/80,

84, 150, 240, 242; **585/407, 480, 481** [IMAGE AVAILABLE]

28. 5,236,575, Aug. 17, 1993, Synthetic porous crystalline MCM-49, its synthesis and use; J. Michael Bennett, et al., 208/46, 135; 423/706, 718; 502/77; **585/407, 415** [IMAGE AVAILABLE]

29. 5,220,089, Jun. 15, 1993, Olefin upgrading by selective catalysis; Quang N. Le, et al., **585/643, 649, 653** [IMAGE AVAILABLE]

30. 5,137,705, Aug. 11, 1992, Synthesis of crystalline silicate ZSM-12; Ernest W. Valyocsik, 423/277; 208/108, 109, 111, 134, 143, 208R, 213; 423/263, 718, DIG.33; 502/77; **585/329, 520** [IMAGE AVAILABLE]

31. 5,134,242, Jul. 28, 1992, Catalytic olefin upgrading process using synthetic mesoporous crystalline material; Quang N. Le, et al., **585/533**; 423/277; **585/332, 520, 530, 648, 653** [IMAGE AVAILABLE]

32. 5,107,049, Apr. 21, 1992, Stabilization of polyalpha-olefins; Quang N. Le, et al., **585/467, 24, 26** [IMAGE AVAILABLE]

33. 5,107,047, Apr. 21, 1992, Zeolite **MCM-22** catalysts for olefin isomerization; Kenneth J. Del Rossi, et al., **585/666, 664** [IMAGE AVAILABLE]

34. 5,105,039, Apr. 14, 1992, Process for producing lubricant fluids of improved stability; Bruce P. Pelrine, **585/407, 417** [IMAGE AVAILABLE]

35. 5,100,533, Mar. 31, 1992, Process for production of iso-olefin and ether; Quang N. Le, et al., 208/67, 120; 568/697; **585/324, 649, 653** [IMAGE AVAILABLE]

36. 5,077,445, Dec. 31, 1991, Liquid-phase alkylbenzene synthesis using hydrated catalyst; Quang N. Le, **585/467**; 502/74; **585/446, 463** [IMAGE AVAILABLE]

37. 5,073,665, Dec. 17, 1991, Process for **alkylating** olefins and isoparaffins in a fixed bed reactor; Jonathan E. Child, et al., **585/722** [IMAGE AVAILABLE]

38. 5,073,655, Dec. 17, 1991, Method for preparing diarylalkanes; Philip J. Angevine, et al., **585/467** [IMAGE AVAILABLE]

39. 5,068,096, Nov. 26, 1991, Synthesis of crystalline silicate MCM-47; Ernest W. Valyocsik, 423/706; 208/108, 109, 111, 134, 143, 208R, 213; 423/263, 718; 502/77; **585/329, 520** [IMAGE AVAILABLE]

40. 5,043,512, Aug. 27, 1991, Alkylaromatic isomerization process; Pochen Chu, et al., **585/481, 480** [IMAGE AVAILABLE]

41. 5,043,503, Aug. 27, 1991, Production of lubricant stocks from polycyclic paraffins; Kenneth J. Del Rossi, et al., **585/360, 375** [IMAGE AVAILABLE]

42. 5,043,501, Aug. 27, 1991, Process for preparing dimethylnaphthalene;

Kenneth J. Del Rossi, et al., **585/323**, **411**, **449**, **467**, **481**, **482** [IMAGE AVAILABLE]

43. 5,030,787, Jul. 9, 1991, Catalytic disproportionation/**transalkylation** utilizing a C9+ aromatics feed; Robert P. L. Absil, et al., **585/475** [IMAGE AVAILABLE]

44. 5,030,785, Jul. 9, 1991, Process for preparing long chain alkyl aromatic compounds employing Lewis acid-promoted zeolite catalysts; Albin Huss, Jr., et al., **585/456**; 568/681; **585/460**, **463**, **465**, **467** [IMAGE AVAILABLE]

45. 5,019,670, May 28, 1991, Process for producing alkylaromatic lubricant fluids; Quang N. Le, et al., **585/467**, **24**, **26**, **533** [IMAGE AVAILABLE]

46. 5,012,033, Apr. 30, 1991, Isoparaffin-olefin **alkylation** process and catalyst composition thereof; Jonathan E. Child, et al., **585/722**, **726**, **727** [IMAGE AVAILABLE]

47. 5,001,295, Mar. 19, 1991, Process for preparing dialkylnaphthalene; Philip J. Angevine, et al., **585/467**, **446** [IMAGE AVAILABLE]

48. 4,992,615, Feb. 12, 1991, Isoparaffin-olefin **alkylation** process; Albin Huss, Jr., et al., **585/722**, **726** [IMAGE AVAILABLE]

49. 4,992,611, Feb. 12, 1991, Direct conversion of C.sub.1 -C.sub.4 oxygenates to low aromatic distillate range hydrocarbons; Roger A. Morrison, **585/640** [IMAGE AVAILABLE]

50. 4,992,606, Feb. 12, 1991, Process for preparing short chain alkyl aromatic compounds; John D. Kushnerick, et al., **585/467** [IMAGE AVAILABLE]

51. 4,982,040, Jan. 1, 1991, Process for the catalytic disproportionation of methylnaphthalenes; Philip J. Angevine, et al., **585/475** [IMAGE AVAILABLE]

52. 4,982,033, Jan. 1, 1991, Process for converting light aliphatics to aromatics; Cynthia T-W. Chu, et al., **585/419**, **407**, **418**, **661** [IMAGE AVAILABLE]

53. 4,973,784, Nov. 27, 1990, Process for reducing the durene content of effluent resulting from the catalytic conversion of C.sub.1 -C.sub.4 oxygenates to gasoline; Scott Han, et al., **585/475**, **470**, **471** [IMAGE AVAILABLE]

54. 4,962,257, Oct. 9, 1990, Process for the catalytic disproportionation of toluene; Robert P. L. Absil, et al., **585/475**, **470** [IMAGE AVAILABLE]

55. 4,962,256, Oct. 9, 1990, Process for preparing long chain alkyl aromatic compounds; Quang N. Le, et al., **585/467**, **446** [IMAGE AVAILABLE]

56. 4,956,514, Sep. 11, 1990, Process for converting olefins to higher

hydrocarbons; Cynthia T-W. Chu, **585/533**, **520** [IMAGE AVAILABLE]

=> s (diffraction or interplanar)(p)table?

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        39193 DIFFRACTION
         1732 INTERPLANAR
       569900 TABLE?
L12      5738 (DIFFRACTION OR INTERPLANAR)(P)TABLE?
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     (FILE 'USPAT' ENTERED AT 13:00:35 ON 06 JUL 1998)
L1       4700 S RELATIVE INTENSITY
L2        327 S MCM-22
L3        130 S L1 AND L2
L4      47163 S ALKYLAT?
L5         94 S L3 AND L4
L6       1381 S TRANSALKYLAT?
L7         29 S L3 AND L6
L8         94 S L5 OR L7
L9      42759 S DIFFRACT?
L10        94 S L8 AND L9
L11        56 S L10 AND 585/CLAS
L12      5738 S (DIFFRACTION OR INTERPLANAR)(P)TABLE?
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=> s l11 and l12

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L13        53 L11 AND L12
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1. 5,744,670, Apr. 28, 1998, Process for preparing dialkylnaphthalene; Masahiro Motoyuki, et al., **585/320**, **312**, **313**, **314**, **315**, **323**, **448**, **450**, **467**, **471**, **475**, **478**, **479**, **481** [IMAGE AVAILABLE]

2. 5,689,024, Nov. 18, 1997, Use of crystalline SUZ-9; Kirk D. Schmitt, **585/467**; 208/113, 120, 134, 136, 137, 138; 210/690, 691; 568/791; **585/722**, **739**, **820** [IMAGE AVAILABLE]

3. 5,625,113, Apr. 29, 1997, Isoparaffin/olefin **alkylation**; Mohsen N. Harandi, et al., **585/722**, **714**, **716**, **730**, **731** [IMAGE AVAILABLE]

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5. 5,554,274, Sep. 10, 1996, Manufacture of improved catalyst; Thomas F. Degnan, et al., 208/111, 135, 264; **585/467**, **475**, **481** [IMAGE AVAILABLE]

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446, 453 [IMAGE AVAILABLE]

7. 5,534,656, Jul. 9, 1996, Organic compound conversion with MCM-58; Ernest W. Valyocsik, **585/709, 475, 476, 721, 722, 739** [IMAGE AVAILABLE]

8. 5,516,962, May 14, 1996, Catalyst and process for isoparaffin-olefin **alkylation**; Cynthia T.-W. Chu, et al., **585/722, 709** [IMAGE AVAILABLE]

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with zeolite MCM-36; Cynthia T. Chu, et al., **585/722, 726** [IMAGE AVAILABLE]

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30. 5,107,047, Apr. 21, 1992, Zeolite **MCM-22** catalysts for olefin isomerization; Kenneth J. Del Rossi, et al., **585/666, 664** [IMAGE AVAILABLE]

31. 5,105,039, Apr. 14, 1992, Process for producing lubricant fluids of improved stability; Bruce P. Pelrine, **585/407, 417** [IMAGE AVAILABLE]

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34. 5,073,665, Dec. 17, 1991, Process for **alkylating** olefins and isoparaffins in a fixed bed reactor; Jonathan E. Child, et al., **585/722** [IMAGE AVAILABLE]

35. 5,073,655, Dec. 17, 1991, Method for preparing diarylalkanes; Philip J. Angevine, et al., **585/467** [IMAGE AVAILABLE]

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37. 5,043,512, Aug. 27, 1991, Alkylaromatic isomerization process; Pochen Chu, et al., **585/481**, **480** [IMAGE AVAILABLE]

38. 5,043,503, Aug. 27, 1991, Production of lubricant stocks from polycyclic paraffins; Kenneth J. Del Rossi, et al., **585/360**, **375** [IMAGE AVAILABLE]

39. 5,043,501, Aug. 27, 1991, Process for preparing dimethylnaphthalene; Kenneth J. Del Rossi, et al., **585/323**, **411**, **449**, **467**, **481**, **482** [IMAGE AVAILABLE]

40. 5,030,787, Jul. 9, 1991, Catalytic disproportionation/**transalkylat ion** utilizing a C9+ aromatics feed; Robert P. L. Absil, et al., **585/475** [IMAGE AVAILABLE]

41. 5,030,785, Jul. 9, 1991, Process for preparing long chain alkyl aromatic compounds employing Lewis acid-promoted zeolite catalysts; Albin Huss, Jr., et al., **585/456**; 568/681; **585/460**, **463**, **465**, **467** [IMAGE AVAILABLE]

42. 5,019,670, May 28, 1991, Process for producing alkylaromatic lubricant fluids; Quang N. Le, et al., **585/467**, **24**, **26**, **533** [IMAGE AVAILABLE]

43. 5,012,033, Apr. 30, 1991, Isoparaffin-olefin **alkylation** process and catalyst composition thereof; Jonathan E. Child, et al., **585/722**, **726**, **727** [IMAGE AVAILABLE]

44. 5,001,295, Mar. 19, 1991, Process for preparing dialkylnaphthalene; Philip J. Angevine, et al., **585/467**, **446** [IMAGE AVAILABLE]

45. 4,992,615, Feb. 12, 1991, Isoparaffin-olefin **alkylation** process; Albin Huss, Jr., et al., **585/722**, **726** [IMAGE AVAILABLE]

46. 4,992,611, Feb. 12, 1991, Direct conversion of C.sub.1 -C.sub.4 oxygenates to low aromatic distillate range hydrocarbons; Roger A. Morrison, **585/640** [IMAGE AVAILABLE]

47. 4,992,606, Feb. 12, 1991, Process for preparing short chain alkyl aromatic compounds; John D. Kushnerick, et al., **585/467** [IMAGE AVAILABLE]

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49. 4,982,033, Jan. 1, 1991, Process for converting light aliphatics to aromatics; Cynthia T-W. Chu, et al., **585/419**, **407**, **418**, **661** [IMAGE AVAILABLE]

50. 4,973,784, Nov. 27, 1990, Process for reducing the durene content of effluent resulting from the catalytic conversion of C.sub.1 -C.sub.4

oxygenates to gasoline; Scott Han, et al., **585/475**, **470**, **471** [IMAGE AVAILABLE]

51. 4,962,257, Oct. 9, 1990, Process for the catalytic disproportionation of toluene; Robert P. L. Absil, et al., **585/475**, **470** [IMAGE AVAILABLE]

52. 4,962,256, Oct. 9, 1990, Process for preparing long chain alkyl aromatic compounds; Quang N. Le, et al., **585/467**, **446** [IMAGE AVAILABLE]

53. 4,956,514, Sep. 11, 1990, Process for converting olefins to higher hydrocarbons; Cynthia T-W. Chu, **585/533**, **520** [IMAGE AVAILABLE]

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US PAT NO: 5,744,670 [IMAGE AVAILABLE] L13: 1 of 53

ABSTRACT:
A process for producing alkylnaphthalene from a feedstock comprising isomers of dialkylnaphthalene and naphthalene by contacting the feedstock with a catalyst composition, in which the process comprising **transalkylation** between isomers of dialkylnaphthalene and naphthalene to produce monoalkylnaphthalene, and isomerization of dialkylnaphthalene, wherein the catalyst composition comprising a synthetic zeolite characterized by an X-ray **diffraction** pattern including **interplanar** d-spacing as set forth in **Table** A of the specification.

US PAT NO: 4,956,514 [IMAGE AVAILABLE] L13: 53 of 53

ABSTRACT:
Light olefins are converted to heavier hydrocarbon products, e.g., those boiling in the gasoline, distillate and/or lube range, over zeolite **MCM-22** catalyst.

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US PAT NO: 5,744,670 [IMAGE AVAILABLE] L13: 1 of 53

ABSTRACT:
A process for producing alkylnaphthalene from a feedstock comprising isomers of dialkylnaphthalene and naphthalene by contacting the feedstock with a catalyst composition, in which the process comprising **transalkylation** between isomers of dialkylnaphthalene and naphthalene to produce monoalkylnaphthalene, and isomerization of dialkylnaphthalene, wherein the catalyst composition comprising a synthetic zeolite characterized by an X-ray **diffraction** pattern including **interplanar** d-spacing as set forth in **Table** A of the specification.

US PAT NO: 5,689,024 [IMAGE AVAILABLE] L13: 2 of 53

ABSTRACT:

This invention relates to use of a new and improved form of crystalline material identified as having the structure of SUZ-9 as a sorbent or a catalyst for organic compound, e.g., hydrocarbon compound, conversion.

US PAT NO: 5,625,113 [IMAGE AVAILABLE] L13: 3 of 53

ABSTRACT:
A process is disclosed for **alkylating** an isoparaffin with an olefin comprising the steps of:
(a) reacting an isoparaffin having from 4 to 8 carbon atoms with an olefin having from 2 to 12 carbon atoms in a first **alkylation** reaction stage at temperature from about -40.degree. C. to about 500.degree. C. and overall isoparaffin:olefin feed weight ratio of from about 1:1 to about 250:1 with a solid **alkylation** catalyst comprising a synthetic porous crystalline material characterized by an X-ray **diffraction** pattern including values substantially as set forth in **Table** I of the specification and having a composition comprising the molar relationship

X.sub.2 O.sub.3 :(n)YO.sub.2,
wherein n is less than about 35, X is a trivalent element and Y is a tetravalent element;
(b) mixing the effluent from said first **alkylation** stage with additional olefin to evolve an intermediate stream having an isoparaffin:olefin weight ratio of from about 2:1 to about 100:1; and
(c) reacting said intermediate stream in a second **alkylation** stage in the absence of intermediate fractionation with a liquid acid catalyst comprising H.sub.2 SO.sub.4 to produce C.sub.5 + **alkylate**.

US PAT NO: 5,569,805 [IMAGE AVAILABLE] L13: 4 of 53

ABSTRACT:
A process is provided for catalytic conversion of feedstock comprising aromatic compounds to product comprising aromatic compounds which differs from said feedstock. The catalyst required in the process comprises a crystalline material having the structure of MCM-58. Said crystalline material may have been treated with one or more monomeric or polymeric siloxane compounds which decompose to oxide or non-oxide ceramic or solid-state carbon species.

US PAT NO: 5,554,274 [IMAGE AVAILABLE] L13: 5 of 53

ABSTRACT:
This invention relates the use of a catalyst composition having the structure of ZSM-5 and a matrix material, which has been manufactured by a new and useful method, for organic compound, e.g., hydrocarbon compound, conversion. The organic compound conversion processes described include catalytic cracking, gasoline hydrofinishing, toluene disproportionation, xylene isomerization, and ethylbenzene production.

US PAT NO: 5,545,788 [IMAGE AVAILABLE] L13: 6 of 53

ABSTRACT:
The present invention relates to a process for **alkylating** a reformate feedstream containing benzene, toluene, xylenes, and ethylbenzene, said process comprising:

1) contacting said reformate feedstream with a hydrocarbon stream comprising C.sub.2 -C.sub.5 olefins in the presence of a catalyst comprising an active form of synthetic porous crystalline MCM-49 under benzene **alkylation** conditions whereby an effluent stream is produced having a benzene content at least 50 wt % less than that of said feedstream, an octane rating no less than that of said feedstream, and a total liquid product greater than that of said feedstream; and
2) collecting the gasoline boiling range fraction of said effluent stream.

US PAT NO: 5,534,656 [IMAGE AVAILABLE] L13: 7 of 53

ABSTRACT:
This invention relates to use of synthetic porous crystalline MCM-58 as a catalyst component in catalytic conversion of organic compounds.

US PAT NO: 5,516,962 [IMAGE AVAILABLE] L13: 8 of 53

ABSTRACT:
There are provided a catalyst, a method for making this catalyst, and a process for using this catalyst in the **alkylation** of an isoparaffin with an olefin to provide an **alkylate**. The catalyst may be made from an as-synthesized material which, upon calcination, is capable of generating zeolites designated **MCM-22**. The as-synthesized material is then combined with a binder material, such as alumina, by an extrusion process. The uncalcined bound material may then be ammonium exchanged, followed by a calcination treatment. The as-synthesized material may also be swollen with a suitable swelling agent, such as a cetyltrimethylammonium compound, prior to the binding process.

US PAT NO: 5,493,065 [IMAGE AVAILABLE] L13: 9 of 53

ABSTRACT:
There is provided a process for the liquid phase synthesis of ethylbenzene with a zeolite designated MCM-49. The process involves the **alkylation** of benzene with ethylene under liquid phase conditions.

US PAT NO: 5,488,194 [IMAGE AVAILABLE] L13: 10 of 53

ABSTRACT:
A process is provided for selective catalytic conversion of certain hydrocarbon feedstocks to product rich in para-dialkyl substituted benzenes. The catalyst required in the process comprises a crystalline material having the structure of PSH-3, **MCM-22** or MCM-49, or a mixture of said crystalline materials, said crystalline material having been treated with one or more monomeric or polymeric siloxane compounds which decompose to oxide or non-oxide ceramic or solid-state carbon species.

US PAT NO: 5,461,182 [IMAGE AVAILABLE] L13: 11 of 53

ABSTRACT:
The transfer of hydrogen from a paraffin to an olefin is provided. This reaction may be carried out in the presence of a catalyst, such as MCM-36. Especially when the paraffin reactant is an isoparaffin, the olefin produced from the reacted isoparaffin may react with unreacted

isoparaffin to also produce an **alkylate** product.

US PAT NO: 5,401,896 [IMAGE AVAILABLE] L13: 12 of 53

ABSTRACT:
Relatively long chain alkyl aromatic compounds are prepared by **alkylating** an **alkylatable** aromatic compound with a relatively long chain **alkylating** agent under **alkylation** reaction conditions in the presence of catalyst comprising zeolite MCM-49.

US PAT NO: 5,396,016 [IMAGE AVAILABLE] L13: 13 of 53

ABSTRACT:
There is provided a process for isomerizing and/or disproportionating a paraffin over a catalyst comprising MCM-36. Examples of paraffins which may be isomerized and/or disproportionated include those having from 3 to 10 carbon atoms. The reaction may take place in the presence or absence of cofed hydrogen, and the catalyst may optionally include a hydrogenation metal, such as platinum. An example of a particular reaction is the disproportionation of isopentane to produce a product comprising isobutane and branched hexanes.

US PAT NO: 5,382,742 [IMAGE AVAILABLE] L13: 14 of 53

ABSTRACT:
There is provided a gallium-containing **MCM-22** zeolite. There are also provided methods for making this zeolite and processes for using this zeolite as a catalyst for the conversion of organic molecules. Particular conversions are reforming and the dehydrogenation of methylcyclohexane to form toluene.

US PAT NO: 5,371,310 [IMAGE AVAILABLE] L13: 15 of 53

ABSTRACT:
Relatively short chain alkyl aromatic compounds are prepared by **alkylating** or **transalkylating** an **alkylatable** aromatic compound with a relatively short chain **alkylating** or **transalkylating** agent under sufficient reaction conditions in the presence of catalyst comprising zeolite MCM-49.

US PAT NO: 5,364,999 [IMAGE AVAILABLE] L13: 16 of 53

ABSTRACT:
There is provided a process for converting organic compounds using a catalyst comprising a pillared, layered crystalline oxide material. This material may be prepared by intercepting a swellable layered oxide before calcination. The intercepted material is swollen and pillared. If the material is not intercepted in this manner, it is transformed into a zeolite by calcination. The pillared material may have a large degree of catalytic activity, and it may have rather porous layers.

US PAT NO: 5,334,795 [IMAGE AVAILABLE] L13: 17 of 53

ABSTRACT:
Ethylbenzene is produced by the **alkylation** of benzene with ethylene in the presence of an **alkylation** catalyst having a particular

structure defined by its X-ray **diffraction** pattern. A preferred catalyst is the zeolite **MCM-22**. The process is typically carried out at a temperature of 300.degree. to 1000.degree. F. but the catalyst provides sufficient activity for the reaction to be carried out at temperatures below 700.degree. F. Liquid phase operation is preferred, giving a lower yield of polyethylated products. The use of the selected catalyst also results in a reduction of the xylene impurity level to values below 500 ppm in the product.

US PAT NO: 5,329,059 [IMAGE AVAILABLE] L13: 18 of 53

ABSTRACT:
A process is provided for disproportionation of an alkylaromatic compound, alkyl being from 1 to about 6 carbon atoms, e.g., toluene and methylnaphthalene, comprising contacting said compound with catalyst comprising an active form of synthetic porous crystalline MCM-49.

US PAT NO: 5,326,922 [IMAGE AVAILABLE] L13: 19 of 53

ABSTRACT:
The transfer of hydrogen from a paraffin to an olefin is carried out in the presence of, as catalyst, MCM-36. Especially when the paraffin reactant is an isoparaffin, the olefin produced from the reacted isoparaffin may react with unreacted isoparaffin to also produce an **alkylate** product.

US PAT NO: 5,304,698 [IMAGE AVAILABLE] L13: 20 of 53

ABSTRACT:
Process for **alkylating** an olefin with an isoparaffin comprising contacting an olefin-containing feed with an isoparaffin-containing feed with a crystalline microporous material under **alkylation** conversion conditions including temperature at least equal to the critical temperature of the principal component of the feed and pressure at least equal to the critical pressure of the principal component of the feed.

US PAT NO: 5,258,569 [IMAGE AVAILABLE] L13: 21 of 53

ABSTRACT:
The **alkylation** of isoparaffin with olefin to provide **alkylate** is carried out in the presence of, as catalyst, MCM-36.

US PAT NO: 5,258,566 [IMAGE AVAILABLE] L13: 22 of 53

ABSTRACT:
Long chain alkyl aromatic compounds are prepared by **alkylating** an **alkylatable** aromatic compound with a long chain **alkylating** agent in the presence of catalyst comprising a synthetic porous MCM-36 material.

US PAT NO: 5,258,565 [IMAGE AVAILABLE] L13: 23 of 53

ABSTRACT:
Short chain alkyl aromatic compounds are prepared by **alkylating** an **alkylatable** aromatic compound with a short chain **alkylating** agent in the presence of catalyst comprising a synthetic porous MCM-36

material.

US PAT NO: 5,254,792 [IMAGE AVAILABLE] L13: 24 of 53

ABSTRACT:
The invention provides an isoparaffin: olefin **alkylation** process comprising contacting isoparaffin and olefin with a synthetic porous crystalline material which is characterized, in its uncalcined form, by an X-ray **diffraction** pattern including values substantially as set forth in **Table** I of the specification and having a composition comprising the molar relationship

X.sub.2 O.sub.3 :(n)YO.sub.2,
wherein n is less than about 20, X is a trivalent element and Y is a tetravalent element.

US PAT NO: 5,250,277 [IMAGE AVAILABLE] L13: 25 of 53

ABSTRACT:
There is provided a crystalline oxide material with a characteristic X-ray **diffraction** pattern. This material may be a layered material, which is swollen or pillared. Upon calcination of the swollen material, the layers collapse and condense upon one another in a somewhat disordered fashion to form a non-swellable material. However, the swollen layered material may be intercalated with polymeric oxide pillars to maintain layer separation, even after calcination.

US PAT NO: 5,236,575 [IMAGE AVAILABLE] L13: 26 of 53

ABSTRACT:
This invention relates to a new synthetic porous crystalline material, a method for its preparation and use thereof in catalytic conversion of organic compounds. The new crystalline material exhibits a distinctive X-ray **diffraction** pattern.

US PAT NO: 5,220,089 [IMAGE AVAILABLE] L13: 27 of 53

ABSTRACT:
Olefins are converted to lower alkene hydrocarbon products, e.g., propene, butenes, and isoalkenes with zeolite **MCM-22** catalyst. This catalytic conversion is particularly useful in the selective separation of linear olefins in mixed hydrocarbon streams, employing **MCM-22** catalyst to convert these straight-chain unsaturated components to lighter products, particularly, C.sub.3 -C.sub.4 olefins. One potential application of this selective separation is in the removal of linear olefins from FCC gasoline.

US PAT NO: 5,137,705 [IMAGE AVAILABLE] L13: 28 of 53

ABSTRACT:
This invention relates to a new form of crystalline material identified as zeolite ZSM-12, to a new and useful improvement in synthesizing said crystalline material and to use of said crystalline material prepared in accordance herewith as a catalyst for organic compound, e.g. hydrocarbon compound, conversion.

US PAT NO: 5,107,049 [IMAGE AVAILABLE] L13: 29 of 53

ABSTRACT:
The thermal stability of poly alpha-olefin (PAO) lubricant basestocks are improved by reacting an aromatic compound with the alpha-olefin oligomer. The PAO materials are prepared by oligomerization of olefins such as 1-decene in the presence of a Lewis acid oligomerization catalyst. The resulting lubricant basestock product exhibits high viscosity, viscosity index and low pour point in addition to the unique enhancement in thermal stability. The reaction between the PAO and the aromatic is carried out in the presence of a solid, cyrstalline **alkylation** catalyst identified by a specific X-ray **diffraction** pattern. The preferred catalyst for this purpose is the material known as **MCM-22**.

US PAT NO: 5,107,047 [IMAGE AVAILABLE] L13: 30 of 53

ABSTRACT:
The invention is a catalytic process for isomerizing an olefin under catalytic isomerization conditions, in the presence of an olefin isomerization catalyst comprising **MCM-22**. The light olefins are linear and/or branched olefins containing greater than three carbon atoms. The olefins can be contained in a fraction having a boiling range of from C.sub.5 + to 390.degree. F.

US PAT NO: 5,105,039 [IMAGE AVAILABLE] L13: 31 of 53

ABSTRACT:
The stability of HVI-PAO olefin oligomers is improved by reaction of the oligomer over an acidic function catalyst which introduces aromatic groups into the oligomer by cracking a portion of the oligomer to form cracking fragments which are then aromatized to aromatics which are subsequently **alkylated** by the oligomer. This reaction incorporates an aromatic function into the oligomer to produce a modified oligomer product of improved stability. The olefinic oligomers are prepared from 1-alkene by oligomerization in contact with a reduced metal oxide, preferably reduced chromium oxide, catalyst on support such as silica. The products retain the unique features of the olefin oligomer and exhibit high viscosity index and low pour point as well as improved thermal and oxidative stability and additive solvency characteristics resulting from the introduction of aromatic moieties into the structure of the oligomer by the intramolecular dehydrocyclization reaction.

US PAT NO: 5,100,533 [IMAGE AVAILABLE] L13: 32 of 53

ABSTRACT:
Process and apparatus for upgrading paraffinic naphtha to high octane fuel by contacting a fresh virgin naphtha feedstock stream medium pore acid cracking catalyst comprising **MCM-22** zeolite under low pressure selective cracking conditions effective to produce increased yield of total C4-C5 branched aliphatic hydrocarbhons. The preferred feedstock is straight run naptha containing C7+ alkanes, at least 15 wt % C7+ cycloaliphatic hydrocarbons and less than 20% aromatics, which can be converted with a fluidized bed catalyst in a vertical riser reactor during a short contact period.
The isoalkene products of cracking are etherified to provide high octane fuel components.

US PAT NO: 5,077,445 [IMAGE AVAILABLE] L13: 33 of 53

ABSTRACT:
There is provided a process for the liquid-phase synthesis of an alkylbenzene, such as ethylbenzene, using a particular **MCM-22** zeolite catalyst which has been hydrated with liquid water.

US PAT NO: 5,073,665 [IMAGE AVAILABLE] L13: 34 of 53

ABSTRACT:
A process for **alkylation** of isoparaffins and olefins employing a fixed bed of catalyst. The catalyst composition includes an unpromoted synthetic zeolite. The **alkylate** product contains highly branched paraffins and has an octane suitable for blending into motor gasolines. Alternatively multiple fixed beds can be employed with direct effluent recycle or split olefin feeds.

US PAT NO: 5,073,655 [IMAGE AVAILABLE] L13: 35 of 53

ABSTRACT:
Diarylalkanes are prepared by **alkylating** an aromatic hydrocarbon with an aromatic **alkylation** agent in the presence of a synthetic porous crystalline material catalyst composition. The aromatic hydrocarbon can be, for example, benzene, toluene, naphthalene, etc. The aromatic **alkylating** agent can be an aromatic compound with a hydroxy group, such as phenol, or benzyl alcohol, or an aromatic halide, aldehyde, ether, or an aromatic olefin such as styrene.

US PAT NO: 5,068,096 [IMAGE AVAILABLE] L13: 36 of 53

ABSTRACT:
This invention relates to a new form of crystalline material identified as zeolite MCM-47, to a new and useful improvement in synthesizing said crystalline material and to use of said crystalline material prepared in accordance herewith as a catalyst for organic compound, e.g. hydrocarbon compound, conversion.

US PAT NO: 5,043,512 [IMAGE AVAILABLE] L13: 37 of 53

ABSTRACT:
A process is provided for converting feedstock alkylaromatic compounds by isomerization over a catalyst comprising **MCM-22**.

US PAT NO: 5,043,503 [IMAGE AVAILABLE] L13: 38 of 53

ABSTRACT:
Alkylated polycycloparaffinic compounds useful as lubricating stocks are prepared by **alkylating** a polycycloparaffinic compound with an **alkylating** agent under **alkylation** reaction conditions in the presence of a zeolite catalyst. Useful zeolites include zeolite Beta as well as zeolites having a Constraint Index of from about 1 to about 10, such as ZSM-5 and **MCM-22**. In a preferred embodiment, the polycycloparaffin comprises adamantane and the **alkylating** agent is a C.sub.14 alpha-olefin.

US PAT NO: 5,043,501 [IMAGE AVAILABLE] L13: 39 of 53

ABSTRACT:
A process for producing 2,6-dimethylnaphthalene by **alkylation** of an alkylaromatic, e.g. toluene, with a C.sub.5 olefin **alkylating** agent, e.g. 1-pentene, in the presence of a suitable **alkylation** catalyst, and dehydrocyclization of the resulting **alkylate** with a dehydrocyclization catalyst to generate a dimethylnaphthalene product rich in the 2,6-isomer. Additional process steps can include isomerization of the product and further **alkylation**.

US PAT NO: 5,030,787 [IMAGE AVAILABLE] L13: 40 of 53

ABSTRACT:
A feedstock containing one or more C.sub.9 + aromatic compounds, and optionally benzene and/or toluene, undergoes conversion over a catalyst comprising a zeolite possessing a Constraint Index of from 1 to about 3 to provide a product containing a substantial amount of C.sub.6 -C.sub.8 aromatic compounds, e.g. benzene and xylene(s), predominantly the latter.

US PAT NO: 5,030,785 [IMAGE AVAILABLE] L13: 41 of 53

ABSTRACT:
Aromatic hydrocarbons are **alkylated** with relatively long chain **alkylating** agents, e.g., C.sub.6 + olefins, in the presence of, as catalyst, certain Lewis acid-promoted zeolites to provide long chain aromatic products which are useful, inter alia, as lubricating oil stocks.

US PAT NO: 5,019,670 [IMAGE AVAILABLE] L13: 42 of 53

ABSTRACT:
The thermal and oxidative stability of HVI-PAO olefin oligomers is improved by **alkylation** in the presence of a solid, porous, acidic **alkylation** catalyst defined by a specific X-ray **diffraction** pattern. A preferred catalyst is the synthetic zeolite **MCM-22**. The olefinic oligomers used as **alkylating** agents are prepared from 1-alkene oligomerization in contact with a reduced metal oxide, preferably reduced chromium oxide, catalyst on support such as silica. Aromatics which may be used in the reaction include monocyclic aromatics such as benzene and toluene as well as bicyclic aromatics such as naphthalene. Substituted aromatics may be used in order to introduce functional groups such as hydroxyl groups into the products, for example by the use of hydroxyaromtics such as phenol or naphthaol. The **alkylated** aromatic hydrocarbon products retain the unique features of the **alkylating** olefinic oligomer and exhibit high viscosity index and low pour point as well as improved thermal and oxidative stability and additive solvency characteristics.

US PAT NO: 5,012,033 [IMAGE AVAILABLE] L13: 43 of 53

ABSTRACT:
Isoparaffin-olefin **alkylation** is carried out in the presence of a Lewis acid-promoted catalyst, said catalyst comprising a synthetic porous crystalline material characterized in its calcined form by an X-ray **diffraction** pattern including interplanar d-spacings at 12.36.+-.0.4,

11.03.+-.0.2, 8.83.+-.0.14, 6.18.+-.0.12, 6.00.+-.0.10, 4.06.+-.0.07, 3.91.+-.0.07 and 3.42.+-.0.06 Angstroms.

US PAT NO: 5,001,295 [IMAGE AVAILABLE] L13: 44 of 53

ABSTRACT:
A catalytic process is provided for the preparation of dialkylnaphthalenes by **alkylating** a 2-alkylnaphthalene with an **alkylating** agent having an aliphatic group of from one to five carbon atoms, such as methanol. The catalyst comprises a synthetic zeolite characterized by an X-ray **diffraction** pattern including interplanar d-spacings at 12.36.+-.0.4, 11.03.+-.0.2, 8.83.+-.0.14, 6.18.+-.0.12, 6.00.+-.0.10, 4.06.+-.0.07, 3.91.+-.0.07 and 3.42.+-.0.06 Angstroms.

US PAT NO: 4,992,615 [IMAGE AVAILABLE] L13: 45 of 53

ABSTRACT:
The **alkylation** of isoparaffin with olefin to provide **alkylate** is carried out in the presence of, as catalyst, a porous crystalline material characterized by an X-ray **diffraction** pattern including interplanar d-spacings at 12.36.+-.0.4, 11.03.+-.0.2, 8.83.+-.0.14, 6.18.+-.0.12, 6.00.+-.0.10, 4.06.+-.0.07, 3.91.+-.0.07 and 3.42.+-.0.06 Angstroms.

US PAT NO: 4,992,611 [IMAGE AVAILABLE] L13: 46 of 53

ABSTRACT:
A feed containing at least one C.sub.1 -C.sub.4 oxygenate, e.g., methanol, and at least one light olefin, e.g., propylene, is directly converted over a particular zeolite catalyst to a low aromatic distillate range hydrocarbon product.

US PAT NO: 4,992,606 [IMAGE AVAILABLE] L13: 47 of 53

ABSTRACT:
Relatively short chain alkyl aromatic compounds are prepared by **alkylating** an **alkylatable** aromatic compound with a relatively short chain **alkylating** agent under **alkylation** reaction conditions in the presence of catalyst comprising a synthetic porous crystalline material characterized by an X-ray **diffraction** pattern including interplanar d-spacings at 12.36.+-.0.4, 11.03.+-.0.2, 8.83.+-.0.14, 6.18.+-.0.12, 6.00.+-.0.10, 4.06.+-.0.07, 3.91.+-.0.07 and 3.42.+-.0.06 Angstroms.

US PAT NO: 4,982,040 [IMAGE AVAILABLE] L13: 48 of 53

ABSTRACT:
A methylnaphthalene such as 2-methylnaphthalene undergoes catalytic disproportionation to naphthalene and a mixture of dimethylnaphthalene isomers, preferably containing substantial quantities of 2,6-dimethylnaphthalene, employing catalyst comprising zeolite characterized by an X-ray **diffraction** pattern including interplanar d-spacings at 12.36.+-.0.4, 11.03.+-.0.2, 8.83.+-.0.14, 6.18.+-.0.12, 6.00.+-.0.10, 4.06.+-.0.07, 3.91.+-.0.07 and 3.42.+-.0.06 Angstroms.

US PAT NO: 4,982,033 [IMAGE AVAILABLE] L13: 49 of 53

ABSTRACT:
Aliphatic C.sub.2 to C.sub.12 hydrocarbons are converted in the presence of a particular zeolite catalyst to a mixture of aromatics, optionally containing olefins.

US PAT NO: 4,973,784 [IMAGE AVAILABLE] L13: 50 of 53

ABSTRACT:
A reduction in the durene content of an effluent resulting from the zeolite-catalyzed conversion of a C.sub.1 -C.sub.4 oxygenate such as methanol to gasoline is disclosed wherein either the total effluent from said conversion or a bottoms fraction thereof containing durene is contacted with a particular zeolite catalyst to convert said durene to other products.

US PAT NO: 4,962,257 [IMAGE AVAILABLE] L13: 51 of 53

ABSTRACT:
A process is provided for the disproportionation of toluene which comprises contacting toluene under disproportionation conditions with a catalyst comprising a particular synthetic porous crystalline molecular sieve.

US PAT NO: 4,962,256 [IMAGE AVAILABLE] L13: 52 of 53

ABSTRACT:
Long chain alkyl aromatic compounds are prepared by **alkylating** an **alkylatable** aromatic compound with a long chain **alkylating** agent in the presence of catalyst comprising a synthetic porous crystalline material characterized by an X-ray **diffraction** pattern including interplanar d-spacings at 12.36.+-.0.4, 11.03.+-.0.2, 8.83.+-.0.14, 6.18.+-.0.12, 6.00.+-.0.10, 4.06.+-.0.07, 3.91.+-.0.07 and 3.42.+-.0.06 Angstroms.

US PAT NO: 4,956,514 [IMAGE AVAILABLE] L13: 53 of 53

ABSTRACT:
Light olefins are converted to heavier hydrocarbon products, e.g., those boiling in the gasoline, distillate and/or lube range, over zeolite **MCM-22** catalyst.

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